



General

Guideline Title

Thoracolumbar spine surgery: a guide to preoperative and postoperative patient care.

Bibliographic Source(s)

American Association of Neuroscience Nurses (AANN). Thoracolumbar spine surgery: a guide to preoperative and postoperative patient care. Glenview (IL): American Association of Neuroscience Nurses (AANN); 2012. 41 p.

Guideline Status

This is the current release of the guideline.

Regulatory Alert

FDA Warning/Regulatory Alert

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- [March 22, 2016 – Opioid pain medicines](#) : The U.S. Food and Drug Administration (FDA) is warning about several safety issues with the entire class of opioid pain medicines. These safety risks are potentially harmful interactions with numerous other medications, problems with the adrenal glands, and decreased sex hormone levels. They are requiring changes to the labels of all opioid drugs to warn about these risks.

Recommendations

Major Recommendations

The levels of recommendation (I-III) and the data quality classifications (1-4) are defined at the end of the "Major Recommendations" field.

Thoracolumbar Conditions

Herniated Nucleus Pulposus (HNP) of the Thoracolumbar Spine

Diagnostic and Physical Exam Findings

Nurses should be alert for "red flags" in the patient history and neurological examination, including a history of cancer, recent trauma or infection, progressive neurological deficits such as weakness or sensory changes, or alterations in bowel and bladder functioning. Abnormal findings should be reported to the healthcare provider (Level 3).

Preoperative, Intraoperative, and Postoperative Management of HNP of the Thoracolumbar Spine

Nurses should provide a clearly defined plan for increasing activity and weaning pain medications during the first few weeks following surgery based on the patient's status. Generally, the goal is to resume normal activities and be titrated off of opioid medications by weeks 2–4 postoperatively (Level 3).

Degenerative Disk Disease (DDD) of the Thoracolumbar Spine

Preoperative, Intraoperative, and Postoperative Management of DDD of the Thoracolumbar Spine

Nurses should provide a clearly defined plan for increasing activity and weaning pain medications during the first few weeks following surgery based on the patient's status. Generally, the goal is to resume normal activities and begin titrating off of opioid medications by weeks 2–4 postoperatively (Level 3).

Stenosis and Spondylosis of the Thoracolumbar Spine

Surgical Treatment Options

Nurses should assess for potential rehabilitation needs based on the patient's preoperative status. If the patient is deconditioned, consider coordinating preoperative referral to a physical medicine and rehabilitation specialist (Level 3).

Spondylolisthesis and Spondylolysis of the Thoracolumbar Spine

Preoperative, Intraoperative, and Postoperative Management of Spondylolisthesis and Spondylolysis of the Thoracolumbar Spine

Nurses should provide a clearly defined plan for increasing activity and weaning pain medications during the first few weeks following surgery based on the patient's status. Generally, the goal is to resume normal activities and begin titrating off of opioid medications by weeks 2–6 postoperatively (Level 3).

Scoliosis and Kyphosis of the Thoracolumbar Spine

Preoperative, Intraoperative, and Postoperative Management of Scoliosis and Kyphosis of the Thoracolumbar Spine

A preoperative evaluation to identify and treat intraoperative and postoperative risk factors should be performed preoperatively with coordination of appropriate consulting services (Level 3).

Fractures of the Thoracolumbar Spine

Preoperative, Intraoperative, and Postoperative Management of Fractures of the Thoracolumbar Spine

Nurses should perform a thorough assessment of functional needs and coordinate consultation services accordingly (Level 3).

Cauda Equina Syndrome (CES)

Preoperative, Intraoperative, and Postoperative Management of CES

Nurses should perform a postoperative assessment of mental health and functional needs of patients to determine the need for consultation services and discharge teaching (Level 3).

Preoperative, Intraoperative, and Postoperative Nursing Care

Preoperative Nursing Responsibilities

Preoperative Planning Several Weeks Before Surgery

Preoperative nutritional assessment and treatment may improve thoracolumbar surgical outcomes (Level 3).

Preoperative Planning the Week Before and Day of Surgery

Implement Measures to Reduce Deep Vein Thrombosis (DVT) Risk

The use of mechanical prophylaxis may decrease the rate of deep venous thrombosis (DVT) in patients undergoing spinal surgery (Level 2).

Low-molecular-weight heparin (LMWH) or low-dose warfarin may be used postoperatively following elective combined anterior-posterior (circumferential) spine surgery or in patients with high-risk for thromboembolic disease (Level 3).

Infection-Control Measures Should Be Implemented to Reduce the Risk of Infection

Patients undergoing spine surgery should receive preoperative prophylactic antibiotics (Level 2).

Standards of practice to reduce infections in hospitalized patients should be implemented in patients undergoing spinal surgery (Level 3).

Intraoperative Nursing Responsibilities

Assist in Coordination of a Pain Management Plan Based on Patient Needs

Preemptive or intraoperative pain management interventions may reduce opioid requirements postoperatively (Level 1).

Opioid analgesics administered via patient-controlled devices can effectively reduce postoperative pain (Level 1).

High-dose nonsteroidal anti-inflammatory drugs (NSAIDs) should be avoided in patients receiving lumbar fusion procedures (Level 2).

Postoperative Nursing Responsibilities

Mobility

Prescribing an exercise program starting 4–6 weeks postsurgery may lead to a more rapid reduction in pain and disability than no treatment (Level 1).

High-intensity exercise programs appear to provide a faster decrease in pain and disability than low-intensity programs for patients receiving lumbar microdiscectomy (Level 2).

When spinal bracing is ordered, the patient should have it properly fitted and receive information on how to wear the brace (Level 3).

Nutrition

Enteral or parenteral nutrition may lead to more rapid normalization of nutritional parameters in patients undergoing staged or complex spinal procedures (Level 2).

Definitions:

Data Quality Classification

Class I: Randomized controlled trial (RCT) without significant limitations or meta-analysis

Class II: RCT with important limitations (e.g., methodological flaws or inconsistent results) or observational studies (e.g., cohort or case-control)

Class III: Qualitative studies, case study, or series

Class IV: Evidence from reports of expert committees or expert opinion of the guideline panel, standards of care, and clinical protocols.

Levels of Recommendation

Level 1: Recommendations are supported by class I evidence.

Level 2: Recommendations are supported by class II evidence.

Level 3: Recommendations are supported by class III and IV evidence.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Thoracolumbar spine disorders requiring surgery, including:

- Herniated nucleus pulposus (HNP)
- Degenerative disk disease (DDD)
- Stenosis
- Spondylosis
- Spondylolisthesis
- Spondylolysis
- Scoliosis
- Kyphosis
- Fractures
- Cauda equina syndrome (CES)

Guideline Category

Counseling

Evaluation

Management

Rehabilitation

Risk Assessment

Clinical Specialty

Neurological Surgery

Nursing

Orthopedic Surgery

Preventive Medicine

Intended Users

Advanced Practice Nurses

Nurses

Guideline Objective(s)

- To provide recommendations based on current evidence that will help registered nurses (RNs), other healthcare personnel, and institutions provide safe and effective care to patients before and after thoracic or lumbar spine surgery
- To offer evidence-based recommendations on nursing activities that have the potential to maximize patient outcomes in all cases of spinal surgery

Target Population

Interventions and Practices Considered

Evaluation/Risk Assessment

1. Assessment for "red flags" in patient history and neurological examination
2. Reporting assessment findings to the healthcare provider
3. Assessment of functional needs
4. Nutritional assessment

Management/Counseling/Rehabilitation

1. Provision of activity plan
2. Provision of analgesia reduction plan
3. Timing to normal activity and weaning from analgesia
4. Referral to a physical medicine and rehabilitation specialist
5. Coordination of consultation services based on functional needs
6. Postoperative mental health assessment
7. Discharge teaching
8. Coordination of pain management
9. Fitting and instructing patient in spinal bracing
10. Management of enteral or parenteral nutrition

Prevention

1. Mechanical prophylaxis to prevent deep vein thrombosis
2. Postoperative low-molecular-weight heparin (LMWH) or low-dose warfarin for selected patients
3. Preoperative prophylactic antibiotics
4. Adherence to standards of practice for infection prevention

Major Outcomes Considered

- Time to return to normal activity
- Time to weaning from analgesia
- Incidence of deep vein thrombosis (DVT)
- Side effects of analgesia
- Incidence of postsurgical infection
- Incidence of other postsurgical complications
- Mortality

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

A computerized search of Medline and the Cumulative Index to Nursing and Allied Health Literature was performed using the names of specific nursing interventions with particular spine pathologies and surgery as keywords. The search was restricted to works in English published between 2000 and 2011 in which the sample included patients with thoracic or lumbar spine disorders.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Data Quality Classification

Class I: Randomized controlled trial (RCT) without significant limitations or meta-analysis

Class II: RCT with important limitations (e.g., methodological flaws or inconsistent results) or observational studies (e.g., cohort or case-control)

Class III: Qualitative studies, case study, or series

Class IV: Evidence from reports of expert committees or expert opinion of the guideline panel, standards of care, and clinical protocols.

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Each guide has been developed based on current literature and is built upon best practices. This document represents a revision of a guideline for care of patients undergoing lumbar spine surgery that first was published in 2006 and now has been expanded to include thoracic issues.

Rating Scheme for the Strength of the Recommendations

Levels of Recommendation

Level 1: Recommendations are supported by class I evidence.

Level 2: Recommendations are supported by class II evidence.

Level 3: Recommendations are supported by class III and IV evidence.

Cost Analysis

A cost analysis was not performed and reviews of published cost analyses were not included.

Method of Guideline Validation

Peer Review

Description of Method of Guideline Validation

The guideline underwent double-blind peer review by a panel of reviewers listed in the guideline document.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Safe and effective care for patients before and after thoracic or lumbar spine surgery
- Maximization of patient outcomes in all cases of spinal surgery

Potential Harms

- The duration of low-molecular-weight heparin (LMWH) or warfarin chemoprophylaxis should be decided based on the underlying pathological condition and weighed against the risk of epidural hematoma.
- Continuous subcutaneous morphine was associated with significantly fewer side effects and lower equivalent pain scores compared with continuous epidural morphine and diclofenac sodium.
- In one meta-analysis, patients using patient-controlled analgesia (PCA) took more opioids and demonstrated more itching compared to their cohorts, but no other significant differences in side effects were found.
- A clinical advantage of patient-controlled epidural analgesia (PCEA) over PCA for patients undergoing spine fusion was the lower quantity of opioids consumed, although the PCEA group experienced significantly more side effects than the PCA group.
- Patients should not drive while using opioids or other medications that may cause drowsiness.

Contraindications

Contraindications

Magnetic resonance imaging (MRI) is contraindicated for patients who have metallic implants or a cardiac pacemaker.

Qualifying Statements

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- The authors, editors, and publisher of this document neither represent nor guarantee that the practices described herein will, if followed, ensure safe and effective patient care. The authors, editors, and publisher further assume no liability or responsibility in connection with any information or recommendations contained in this document. These recommendations reflect the judgment from the American Association of

Neuroscience Nurses regarding the state of general knowledge and practice in the field as of the date of publication and are subject to change based on the availability of new scientific information.

- This reference is an essential resource for nurses responsible for the perioperative care of patients with spine disorders. It is not intended to replace formal education, but rather to augment clinician knowledge and provide a readily available reference tool.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

Not applicable: The guideline was not adapted from another source.

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Guideline Developer(s)

American Association of Neuroscience Nurses - Professional Association

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Guideline Committee

Not stated

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

A staff member, volunteer or family member who has an affiliation with a commercial company must declare that relationship in advance of involvement with an education activity that could be used as a forum to promote interest of that company and its products. None of the authors or planners has anything to disclose related to this activity.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the [American Association of Neuroscience Nurses Web site](#) .

Availability of Companion Documents

None available

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on May 21, 2012. The information was verified by the guideline developer on May 23, 2012. This summary was updated by ECRI Institute on March 10, 2014 following the U.S. Food and Drug Administration advisory on Low Molecular Weight Heparins. This summary was updated by ECRI Institute on June 2, 2016 following the U.S. Food and Drug Administration advisory on Opioid pain medicines.

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